

ABSTRACT

906
6/25/03
Sub
a2
B
Add

A heater wire which is applied to an impulse heat sealer, a book binding machine, a laminator, an image-creating device, ^{etc.} ~~and so on~~. A thin sheet of resistant material such as iron-chromium alloy is further thinned by rolling, properly strengthened by quenching, and processed by photo-etching so that the width of a heat-generating part is small and those of the electrodes are larger than that, thus integrally producing a heater wire. The heat-generating part of the heater wire is zigzag at such small intervals that the zigzag pattern disappears on a sealing line or plane because of heat diffusion, and the width of the zigzag is uniformly narrow and almost equal to that of the required shape. Therefore, the drawback on connection between the heat-generating part and electrodes is solved and the resistant wire is matched with the power supply voltage because of its relatively fine and long structure.

In the Claims:

15 Please amend Claims 1-5, as follows:

The invention is claimed as follows:

1. (Amended) An impulse heat sealer comprising:

a power source circuit, a heater connected thereto and a press mechanism incorporating the heater, wherein by feeding a comparatively large current from the power source circuit for a short time to the heater including a heater wire, the heater wire being covered by a fluoro resin coated glass tape, to heat the heater and by interrupting the comparatively large current for cooling, polyethylene and a heat meltable resin caught in the press mechanism is melted and adhered; and

the heater wire comprising a thin plate of electrically high resistance metal, the thin plate of electrically high resistance metal is thinned and strengthened, and the heater wire is processed in such a configuration that the width of an electrode portion or a portion which suppresses heat generation is broadened so far as permitted by the electrically high resistance metal, and a heat generating portion is shaped into a desired configuration with a narrow uniform width, then the both portions are integrated so as to form a self independent body.

2. (Amended) An impulse heat sealer according to Claim 1, wherein the heater wire, in order to prevent swelling of a seal line or a plane to a side of a main body of a polyethylene bag caught in the press mechanism and ~~the~~ breakage thereof should be prevented, is configured in such a manner that either the width broadened portion of the electrode portions at the side facing to the main body is eliminated or when the broadened portions are provided at both sides of the electrode portions, the broadened portions facing the main body is retreated further away in comparison with another broadened portion at the opposite bag edge side.

3. (Amended) An impulse heat sealer according to Claim 1, wherein the heat generating portions of a single or a plurality of heater wires are arranged to come close within a plurality of small gaps of certain degree formed by itself or with the other heater wires to gather the heat generated together through heat diffusion at a resultant seal line or a plane to disappear the gaps.

4. (Amended) An impulse heat sealer according to Claim 1, wherein the heater wire is configured in a zigzag shape with a small gap which is caused to disappear through heat diffusion on a resultant seal line or a plane, and is spread over a desired configuration for the heat generating portion.

5. (Amended) A book binding machine and laminator comprising:

a power source circuit, a heater connected thereto and a press mechanism incorporating the heater, the heater including a heater wire covered by a fluoro resin coated glass tape;

the heater wire comprising a thin plate of electrically high resistance metal, the thin plate of electrically high resistance metal is thinned and strengthened, the heater wire is processed to form an electrode portion or a portion which suppresses heat generation having a broadened width so far as permitted by the electrically high resistance metal and a heat generating portion formed into a zigzag shape with a narrow uniform width and with a small gap which disappears heating unevenness at a resultant sealed portion through heat diffusion and covering over an entire desired configuration thereof; and

the heater is heated by being fed a comparatively large current from the power source for a short time and is cooled by interrupting the comparatively large current, and using polyethylene and a heat meltable resin caught in the press mechanism as adhesive such as book binding use paper sheets and laminate use films are melt-adhered.

Please add newly submitted Claims 6-12, as follows:

6. An impulse heat sealer according to Claim 1, wherein the thin plate of electrically high resistance metal is thinned by a rolling means.

7. An impulse heat sealer according to Claim 1, wherein the thin plate of electrically high resistance metal is strengthened by a tempering means.

8. An impulse heater sealer according to Claim 1, wherein the heater wire is processed by a photoetching means.

9. An impulse heater sealer according to Claim 1, wherein the thin plate of electrically high resistance metal is iron chromium.

10. A book binding machine and laminator according to Claim 5, wherein the thin plate of electrically high resistance metal is thinned by a rolling means.

11. A book binding machine and laminator according to Claim 5, wherein the thin plate of electrically high resistance metal is strengthened by a tempering means.

12. A book binding machine and laminator according to Claim 5, wherein the thin plate of electrically high resistance metal is iron chromium.